Amendments To The Claims

1. (Original) A method of forming a photonic crystal material comprising exposing a photosensitive material to an interference pattern of electromagnetic radiation whereby the exposure through the material varies in accordance with the spatially varying intensity created by the interference to produce a three dimensional periodic variation in the refractive index of the photosensitive material based on the exposure, the photosensitive material possessing an average number of crosslinkable groups per molecule of at least 3 with an equivalent weight per crosslinkable group of at most 1000.

2. (Original) A method according to claim 1, wherein the irradiated sample of photosensitive material is developed to remove less irradiated regions of the sample.

3. (Previously Presented) A method according to claim 1 wherein the photosensitive material is an epoxy resin.

4. (Previously Presented) A method according to claim 1 wherein the number of crosslinkable groups per molecule is at least 6.

5. (Original) A method according to claim 4 wherein the number of crosslinkable groups per molecule is about 8.

6. (Previously Presented) A method according to claim 1 wherein the equivalent weight per crosslinkable group is at most 300.

7. (Original) A method according to claim 6 wherein the equivalent weight per crosslinkable group is at most 230.

8. (Previously Presented) A method according to claim 1 wherein the photosensitive material is a glycidyl ether of bisphenol A novolac resin.

9. (Original) A method according to claim 8 wherein the resin is one where the number of epoxy groups per molecule is about 8 and the resin is co-polymerised with a less crosslinkable plasticising epoxy monomer.

10. (Previously Presented) A method according to claim 1 wherein the photosensitive material comprises a photoacid generator.

11. (Original) A method according to claim 10 wherein the photoacid generator possesses a molar extinction coefficient of 50 to 2000 mol^{-1} dm^3 cm^{-1} at the wavelength of radiation being used, is used at a concentration at which it does not absorb more than 5% of the radiation which is incident upon it while having a quantum efficiency which is sufficient for the exposure to cause insolubilisation of the photosensitive material.

12. (Original) A method according to claim 11 wherein the molar extinction coefficient is 100 to 500 mol^{-1} dm^3 cm^{-1}.

13. (Previously Presented) A method according to claim 11 wherein the photoacid generator is a triaryl sulphonium salt.

14. (Previously Presented) A method according to claim 1 wherein the photosensitive material is cured by subsequent heating to cause acid catalysed polymerisation.

15. (Original) A method according to claim 14 wherein the photosensitive material is cured by heating at 40°C to 120°C for 1 to 20 minutes.

16. (Previously Presented) A method according to claim 14 wherein the heating is carried out at a temperature below the melting point of the photosensitive material.

17. (Previously Presented) A method according to claim 2 wherein material is introduced into the voids produced by development of the irradiated photosensitive material.

18. (Original) A method according to claim 17 wherein the optical properties of the irradiated sample are adjusted by the introduction of a material having a predetermined refractive index that is different from that of the irradiated photosensitive material.

19. (Original) A method according to claim 17 wherein the irradiated sample is used as a template for the production of other composite materials having periodic variations in refractive index.

20. (Previously Presented) A method according to claim 1, wherein the photosensitive material is subjected to multiple exposures, each exposure producing respective interference patterns.

21. (Previously Presented) A method according to claim 1, wherein the three dimensional pattern is formed by directing electromagnetic radiation from at least four beams at the photosensitive material so as to intersect and interfere within it.

22. (Cancelled)

23. (Cancelled)